

IOT BASED FISHERMAN BORDER ALERT SYSTEM USING GPS AND WSN

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Abstract – The objective of this project is to safe guard the lives of fisherman by using the technology GPS (Global Positioning System) and WSN (Wireless Sensor Network).GPS is used to track the current location of the boat. If the fisherman cross the border, the alarm sound will get generated. The relay circuit will reverse the boat. The WSN technology is to transfer the information between fisherman and IOT (Internet of Things) station.

Key Words: GPS module, WSN network, Arduino.

1. INTRODUCTION

The coastal area people are purely depend on fishing occupation in the sea. If the fisherman cross the border it should be treated as a serious offence. Due to unawareness about the boundary limits, the fisherman cross the maritime borders .Once they crossed the border, the boats are being captured by the neighborhood countries coastal guards. Under such situation lives of fisherman are in danger.In such cases our border alert system for fisherman will help to over come the project.

Using GPS the current latitude and longitude values can be determined and it compare the current location and predefined latitude and longitude values.This is how we track the location using GPS. ZigBee devices can transmit data over long distances by passing data through a mesh network of intermediate devices to reach more distance. It is best suited for intermittent data transmission from a sensor or input device. ZigBee act as a WSN devices.

2. EXISTING SYSTEM

Wake App: Wake app is a geo located alarm that goes of when the user is about to arrive at the selected destination. Once the user select stop on the map closes the application using the devices GPS.

Bus Snooze: Bus Snooze is a GPS location based alarm clock which will wake the user arrive at the desired location. It uses both GPS and network location which the alarm will go off save location for later use. It can save only two location.

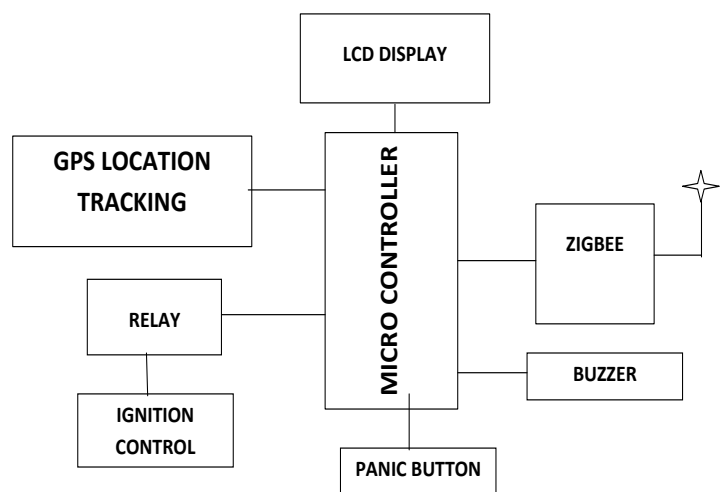
Mobile Location Alarm: Mobile location alarm allows user to edit, delete, update, enable and disable the alarms. This is used to enter new alarm for a particular location.

3. PROPOSED SYSTEM

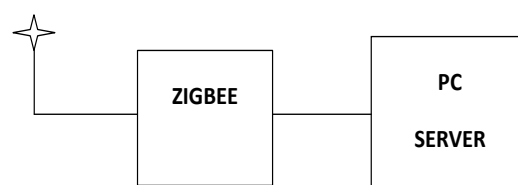
In our proposed system a low cost and easy tracking unit separately and monitoring unit separately. If someone crossing the border the entire fisherman will get the alert about the person who crossed. So other fisherman can rescue them if they wrongly crossed or due to boat failure the crossed. This system provides Indication to both fisherman and coastal guards. It saves the lives of fisherman and alerts the base station to provide help. Thus we can stop the fisherman before the border.

4. BLOCK DIAGRAM

FISHER MAN SIDE:



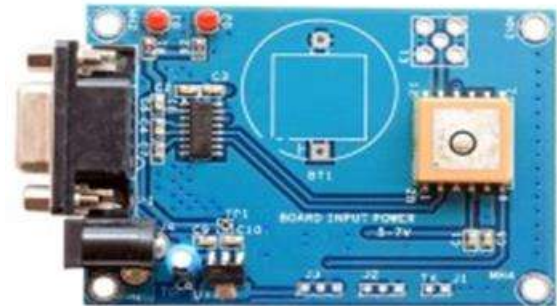
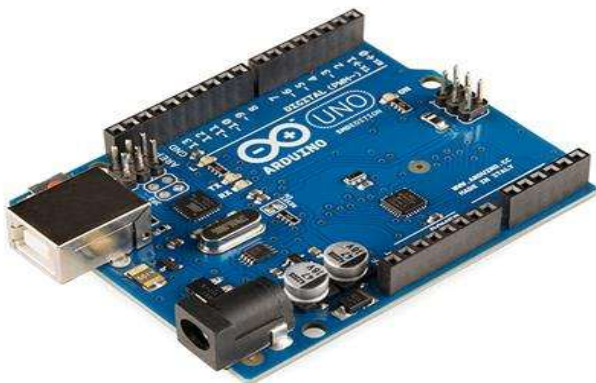
SERVER SIDE:



5. DESCRIPTION

5.1 ARDUINO UNO

Arduino is an open source, electronics platform based on easy to use hardware and software. The Arduino Uno is a microcontroller based board. It has 14 digital input/output pins, 6 analog inputs, a 16MHz crystal oscillator, a USB connection, a power jack, ICSP header, and a reset button. The project is based on microcontrollers board designs, produced by using various microcontrollers. The board features serial communication interfaces including Universal Serial Bus (USB) on some models, for loading programs from personal computers. The Arduino project provides an Integrated Development Environment (IDE) based on a programming language.



5.2 GPS MODULE

It is a global navigation satellite system that provides geo location and time information to a GPS receiver anywhere on or near the earth where there is an unobstructed line of sight to four or more GPS satellites. The GPS system does not require the user to transmit any data, and it operates independently of any telephonic or internet reception. The GPS system provides critical positioning capabilities to military, civil and commercial users around the world.

GPS satellites continuously transmit their current time and position. A GPS receiver monitors multiple satellites and solves equations to determine the precise position of the receiver and its deviation from true time.



5.3 RELAY BOARD

Relays are simple switches which are operated both electrically and mechanically. The switching mechanism is carried out with the help of an electromagnet. The main operation of a relay comes in places where only a low power signal can be used to control a circuit. Relays were used extensively in telephone exchanges and early computers to perform logical operations.



5.4 LCD DISPLAY

LCD (Liquid Crystal Display) is the technology used for display the output. All LCD display have same 14 pins (0-13) or 16 pins (0-15).Alphanumeric displays are used in a wide range of applications. It has many sizes. Many multinational companies make their own special kind of LCD'S to be used in their products. If LCD is interfaced with microcontroller it should not exceed 5v of power supply.



5.5 POWER SUPPLY

A Power supply unit converts mains AC to low voltage regulated DC power for the internal components of a computer .There are two types of power supply linear and switched mode. Linear power supply uses a transformer to reduce the voltage.AC adapter are used with electrical devices that requires power but do not contain internal components to derive the required voltage and power from the main power.

5.6 IGNITION CONTROL UNIT

The engine control unit consist of the Random Access Memory(RAM), Read Only Memory (ROM).this unit is used to reverse the motor when it reaches the restricted area. The Electronic Control Unit (ECU) can control almost every operation in an engine. The fuel injector is fitted with a solenoid valve which is electromagnetically controlled mechanical valve.

5.5 ZIGBEE

Zigbee is a wireless technology developed as an open global standard to address the unique needs of low cost, low-power wireless IOT networks. Zigbee communication is specially built for control and sensor networks. The Zigbee WPAN's operates at 868MHz, 902-928MHz and 2.4GHz frequencies. This communication system is less expensive and simpler than the other proprietary short range wireless sensor networks as Bluetooth and wifi.



5.6 BUZZER

A Buzzer or beeper is an audio signaling device .Buzzer is an integrated structure of electronic transducers. Active buzzer 5V rated power can be directly connected to a continuous sound. Typical uses of buzzers and beepers include alarm devices, timers. It generates consistent single tone sound just by applying D.C voltage.

6. CONCLUSION

The alert system which we have developed will provide an effective solution for fishermen problem and prevent them from crossing other country border. This conclusion will save many fishermen lives from crossing the national border. Our project mainly focus on smooth relationship between two countries. Death rate will be decreased and fishermen life time can be increased.

7. FUTRE SCOPE

In future this idea can be enhanced by using smart watches and satellite phone.

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